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LEARNING FROM EXPERIENCE: THE CASE OF MARICULTURE DEVELOPMENT AND PERMITTING IN TANZANIA

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LEARNING FROM EXPERIENCE: THE CASE OF MARICULTURE DEVELOPMENT AND PERMITTING IN TANZANIA

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Mariculture as an economic development opportunity on the Tanzania coast in 1997 posed a puzzling dilemma as the nation grappled with the clear potential offered by the various forms of this activity as opposed by potential threats to its relatively pristine coastal environment and social harmony of its residents. Mariculture as first manifested in seaweed culture, conducted on a small scale mostly by village women, demonstrated that opportunities existed for mariculture to contribute to families and communities. Looking abroad, other forms of mariculture conducted at various scales, such as prawn farming, offered tempting visions of providing employment, foreign exports and increased technical capacity for the nation. Tanzania is one of the few nations in the world with excellent sites for nearly all types of mariculture, but essentially no industry. But when the proposals for large-scale prawn farming emerged in the late 1990's in Bagamoyo and the Rufiji Delta, the choices were not at all clear, nor was the path towards resolution of the various emerging conflicts easily detected.

Mariculture is an intersectoral activity that touches on many institutional jurisdiction and takes place largely in coastal habitats whose regulation and management are still evolving. Tanzania's natural environment is relatively intact, as denoted by its largely intact extents of mangroves and wetlands. The nation's ability to ensure the wise-use of the resources, in the face of growing pressure, is largely untested. Tanzania has not demonstrated a capacity for managing development in an integrated fashion and has few mechanisms in place to allow for appropriate public participation in the decision-making process. These limitations have inhibited the development of the mariculture sector.

This situation presents an opportunity for learning and this learning, we hope, will lead to change. The Tanzania Coastal Management Partnership (TCMP) and the Fisheries Division, along with a number of cooperating institutional partners have spent over 24 months working to resolve the issues of wise mariculture development in Tanzania. Starting early in 1998, the mariculture-working group completed an deep analysis and profile of issues related to mariculture. Then, through a series of extensive and intensive consultations with resources users, technical experts and decision makers, developed and had endorsed a strategy for improving the review and permit process for mariculture. In recent months, the working group has successfully implemented this strategy and recently had a streamlined permit process adopted by the sectors key to mariculture development.

While resolving the challenges presented by mariculture was key, even more critical was the need to use this issue as a means to achieving a larger goal – creating an intersectoral approach to managing coastal development. Tanzania may be one of the few nations with the will to so

boldly and so rapidly take up the difficult challenge posed by mariculture so that future economic development could proceed, all the while keeping the environmental and socioeconomic wellbeing of the nation in mind. The experience created during the mariculture process must now be harvested and applied it to other economic opportunities that are emerging along the coast.

This document captures the working group's experience. It is presented through two different perspectives in the two works contained in this document. The first, "Sustainable Mariculture Development in Tanzania", by James Tobey, Ph.D. takes an analytical look at the learning tools used by the TCMP and the Mariculture Working Group (MWG) to approach the topic and the outcomes of their labors. Both successes and challenges are identified, and lessons of general applicability are derived. The second work, a joint effort of Elin Torrel and James Tobey and the members of the Mariculture Working Group, takes a slightly different and more personal approach to illustrating the mechanisms of learning as individuals and how this impacts institutional capacity. A learning self-assessment workshop was held during which government and private sector personnel attempted to determine how and what was learned, and how this affected the working of the nation and future industry. The outcomes of that workshop are captured by this document.

This document will interest anyone wishing to learn more about mariculture, the approach that was taken in Tanzania and the lessons that were learned. Coastal and natural resources managers can take away concrete lessons as to tools and methodologies for participatory management. Members of the government or the private sector will observe how sectors working together and supporting each other can make rapid progress. The true intent of this document, however, is to instigate "learning virus" so that these lessons are transferred to other endeavors of management and conservation.

CASE STUDY IN INTEGRATED COASTAL AND WATER RESOURCES MANAGEMENT

Sustainable Mariculture Development in Tanzania

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Introduction

Global aquaculture production is growing at more than 10 percent per year, compared with 1.5 percent for capture fisheries. Most of this growth is taking place in tropical countries and is expected to continue. Mariculture (coastal aquaculture) is dominated by the production of aquatic plants (seaweeds) and mollusks. However, a wide range of diverse coastal aquaculture systems has been developed around the world, operating at different intensities and scales of production. In many poor countries, especially where traditional inshore fishing is in decline, it is an important source of both wealth and protein. In some tropical countries, mariculture ranks as one of the top three sources of foreign exchange earnings.

Tanzania is one of the poorest countries in the world in terms of per capita income. The need for alternative sources of protein and livelihoods is great, particularly in coastal areas, which are among the poorest regions in the country. The coastal watersheds of Tanzania are in relatively good condition, although pressures on resource use are mounting rapidly. The challenge is to promote coastal development that improves the human quality of life without compromising the long-term health of ecosystems and watersheds.

The great diversity of mariculture encompasses very small scale to very large-scale enterprise, implying that the sector can contribute to a wide range of development needs. At the village level, mariculture can help alleviate poverty by providing an alternative form of crop production. In Tanzania, there is an emerging village-based seaweed farming industry that has already had significant positive impacts on the lives of coastal families.

Other forms of mariculture, especially shrimp farming, have potential in the future to have a greater impact on economic development and on the transformation of coastal watersheds. For example, a private investment proposal for what would have been the largest shrimp farm in the world was submitted to the Tanzanian government for approval several years ago. The project was planned to be sited in the Rufiji river delta where the country's largest mangrove wetland area is located. The hatchery was planned to be located on Mafia Island, the location of a marine protected area.

This and other shrimp mariculture development proposals brought to the political forefront the realization that Tanzania lacks the necessary guidelines and institutional mechanisms to effectively manage the complex challenges of coastal watershed management. It illustrated that there is a critical absence of feedback mechanisms between coordinating agencies, decision makers and implementing authorities at all levels. This situation threatens both investor confidence and willingness to take risks, and environmentally sustainable development of fragile coastal ecosystems.

Approach

When USAID and the government of Tanzania agreed to address these problems, it was the first national coastal management initiative in the country. The project, known as the Tanzania Coastal Management Partnership, decided to tackle sustainable mariculture development at the national level to demonstrate effective techniques of integrated coastal management and to show positive results on a priority coastal topic as early on as possible.

The TCMP formed a multi-disciplinary and inter-sectoral Mariculture Working Group (MWG) whose members are drawn from the public and private sectors. The MWG was formed to tackle three significant problems associated with mariculture development. These include unsuccessful development, where the potential for development is not realized, especially among the poorer sectors of society; the vulnerability of mariculture to poor water quality caused by the pollution and degradation of coastal watersheds; and over-rapid development, where the potential success of the sector is tarnished by environmental and resource use issues, social problems, disease, and marketing problems.

Although some of the social and environmental problems may be addressed at the individual farm level, most are cumulative—insignificant when an individual farm is considered, but potentially highly significant in relation to the whole sector. They are also additive—in the sense that they may add to the many other development pressures in the coastal area.

These cumulative and additive problems can only be addressed through better planning and management of the sector—by government, in collaboration with the private sector and interested parties. As a pilot activity of the TCMP, mariculture offered an opportunity to show how a comprehensive and integrated approach to coastal resources management provides a framework for addressing the wider issues of sustainable coastal resource use, the minimization of conflict, and optimal allocation of resources, including in particular land and water.

The first step of the MWG involved the definition of provisional working goals and objectives and the identification and analysis of issues. The Group carried out a comprehensive assessment of mariculture using existing documents and knowledge to advance understanding of:

- composition and structure of the mariculture sector
- the development context (natural and human resources and economy) and mariculture development options
- the existing knowledge base and information gaps
- public awareness and interests
- land tenure rules
- legal, procedural, and institutional frameworks and planning means/mechanisms
- environmental and resource use policies, regulations, and guidelines

The Mariculture Working Group's participatory assessment occurred over a one-year period; it was an essential basis for consultations among managers, scientists and the public at large at both the local and national level on goals and priorities for sustainable mariculture development.

The formulation of mariculture development guidelines became the next challenge of the Group in the planning process. The goal of mariculture development guidelines was to establish clear project review and approval procedures that are consultative, multi-sectoral and interdisciplinary, and to design monitoring, reporting, evaluation and response procedures. Guidelines are intended

to increase the likelihood that projects can be reviewed in a manner that safeguards the environment and coastal population, while encouraging wise investment in mariculture. The Group constructed recommended procedures that build upon the current responsibilities and procedures of existing institutions, while enhancing communication and coordination between institutions, levels of government, and between the public and private sector.

Drawing from worldwide experience, it was recognized early on that to be successful, guidelines must be practical, encourage a balance between conservation and development, have broad government ownership, and be acceptable to the private sector. The strategies used therefore included expanding the Mariculture Working Group to include participants from all relevant agencies, continuous consultation and consensus building with relevant public and private stakeholders, and harvesting the practical lessons learned from on-the-ground studies of cases of mariculture development.

Results to Date

The product of issue identification and analysis was a “profile” of mariculture issues that was reviewed and endorsed by Director’s of government agencies in January 1999. The profile not only represents a baseline of management relevant information on mariculture for future use in Tanzania, but it has been made available worldwide and is being used as an example for how to construct a mariculture profile in other nations.

The key result of the profile for the TCMP was to empower the inter-agency Group to continue working on mariculture planning and development, and to give the Group high-level government guidance on priority planning and management needs—identified as mariculture development guidelines.

Development guidelines were developed with broad stakeholder support over a one- and a half-year period. The guidelines include crucial elements such as:

- siting, design, technology, and management at the farm level
- location and spatial distribution of the sector as a whole
- water supply
- project appraisal, permit and EIA procedures and institutional roles and responsibilities
- monitoring protocols
- fish health management including disease and stock control
- communication and information exchange
- access to markets and trade opportunities
- research and extension

The work was pioneering, in many cases guidance was crafted in areas where none previously existed.

Significantly, the participatory, inter-agency methods used by the Mariculture Working Group were practically unheard of at the national level for addressing a complex, inter-sectoral issue. They proved successful and created a high level of trust, cooperation, and cohesion—all critical to long term capacity for coastal watershed management. The integrated approach has increased communication and created a greater understanding between sectors. A planned approach to mariculture development, as is outlined in the guidelines documents of the Group, is unlikely to be achieved without effective integration with planning and management of other sectors.

Through the work of the MWG, the capacity to work inter-sectorally has increased throughout the public sector.

By bringing together a wide array of knowledge and points of view to bear, the participatory and consultative process of the MWG proved effective at consensus building and solving complex problems. The open process has created a constituency for the mariculture issue profile and guidelines, and national attention to the issue has increased public and commercial awareness of the viability of mariculture.

Lessons Learned

The work of the MWG was undertaken to test and demonstrate how ICM can make tangible progress on an important coastal issue. Mariculture in Tanzania exemplifies issues that will be typical of most economic development activities within the coastal area such as tourism, agriculture, industry and oil and gas development. Harvesting lessons from the experience is therefore an important feature of the initiative.

In two annual self-assessment retreats and one learning workshop, the MWG has identified five key areas of lessons learned that are relevant to similar work on other complex coastal issues.

- ***Effective representation, involvement and coordination with other sectors***

There are many stakeholders to mariculture development and it is a challenge to get all relevant parties represented and engaged. Involvement of all interested parties is critical to gain support for the plan and compliance with its provisions. Involvement means not only consultation and information exchange, but also direct involvement or participation of stakeholders in the decision making process.

The MWG found it difficult engaging representatives in certain areas, such as the business/private sector and government agencies such as tourism, mining, and industries. The important finding for future ICM activities is to make a conscious investment of effort to continually contact, inform, and consult with all key stakeholder groups.

Another lesson learned is the strategic importance of continuous consultation and involvement of high-level decision-makers in planning. In Tanzania government, as in many countries, access to and active support of high level decision-makers at critical junctures is difficult but critical. These are the people with final decision-making power.

From a practical standpoint, the experience of the MWG shows that participation by members of a working group is improved when the activities of the group directly connect with the duties and responsibilities of the members in their respective institutions. Thus, “who” is involved in the planning team matters greatly. Finding venues and mechanisms for communication and feedback between working group activities and representative agencies promotes connections and empowers members in the group and the work that they are involved in.

- ***Institutional capacity***

Institutions and capacity must be considered at all stages of mariculture planning, but especially in relation to implementation. The ideal institutional framework would allow for vertically (national to local) and horizontally (across sectors) integrated policy-making, assessment and planning. Such a framework should allow for adaptation in both directions, i.e. national policy

should inform local planning; and local planning and public involvement should inform the development or adaptation of policy at higher levels.

- ***Build in flexibility***

Mariculture development plans must be flexible. Procedures will need to be adapted and modified in the light of experience and changes in the overall development context. In Tanzania, sectoral policies are in a continual state of modification and evolution. This creates confusion because there are “old” but approved policies and new, but not yet formally adopted policies. The implication for sustainable mariculture development in Tanzania is that mariculture guidelines will need to be reviewed and amended over time as the whole policy context evolves.

- ***External communication and public education***

Continual outreach and public education through newspapers and other news media are critical to inform the public and decision-makers of the importance of the issues, and to enhance understanding of coastal management efforts and their goals. The MWG found that stakeholders in local communities often have over expectations on the immediate results of inter-agency work. Local stakeholders look for immediate and concrete individual benefits of government management efforts, not “only” policy and guidelines.

- ***Incentives for Group work***

Most members of the MWG valued the opportunities that the Group work provided in terms of expanding their expertise and experience, and professional development. Modest financial incentives to undertake additional work and responsibility are also important. These are important incentives to participation to keep in mind in cooperative inter-agency efforts at coastal resource management.

Outstanding Issues

The mariculture guidelines will be submitted for adoption to a meeting of directors convened by the Director of Fisheries. The next challenge will be to build capacity to successfully implement the guidelines. Implementation involves deployment of specific planning instruments and development actions, and the promotion, facilitation, and if necessary enforcement of policies and regulations. The three years of work of the Mariculture Working Group has greatly increased capacity for implementation, but this stage in the planning process invariably brings new challenges.

Additional Information

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Internet Web Sites

<http://crc.uri.edu/>

Publications

The following publications are available in pdf format at <http://crc.uri.edu/>, or can be requested from the Coastal Resources Center or the Tanzania Coastal Management Partnership:

- *Mariculture Issue Profile*, Working Document Number 5009, Tanzania Coastal Management Partnership, October 1999
- *Draft Mariculture Guidelines*, Tanzania Coastal Management Partnership, May 2000
- Socio-Economic Assessment of Tanzania's Coastal Resources, TCMP Working Document 5006
- Mariculture Executive Summary and Action Strategy, TCMP Working Document 5013
- Mariculture Permitting and Project Development Guide, TCMP Working Document 5042
- Mariculture Source Book, TCMP, Working Document XXX (not yet assigned)

Proceedings from the MWG

“Learning from Experience Workshop”

A joint effort of the TCMP and the Fisheries Division

Tobey, J., E. Torell, B., Mgaya, Sobo F., Lema, R., Kimaro, S., Kalangahe Y., Lugazo, Z., Mbyopyo, S., Mhitu, H., Shao, A., Mahenge, J., Mwaipopo, D., Maly, R., Masanja, F., Haws, M., Mwamsojo, G., Daffa, J., and Amaral, A.¹

1. Introduction

The MWG is a good example of a governance process to address the issue of mariculture that contributes both to the advancement of mariculture and to the practice of integrated and participatory management. At the “Learning from Experience Workshop” the main goal was to assess the lessons learnt from the governance process, putting less emphasis on the findings in terms of successful mariculture. The main objectives of the workshop were to:

- Document the chronological history of the MWG
- Explore the integrated and participatory approach used by the MWG
- Identify the critical assumptions, events, activities, and outcomes of the MWG
- Capture the lessons learned that can be replicated in other places
- Develop ToR for the MWG learning document

Assessing past experiences of the MWG contributed to the general documentation of the learning history of MWG and TCMP. Apart from feeding into the learning document², the “Learning from Experience Workshop”, prepared the MWG for the Self-Assessment workshop, which is to be held May 1-4, 2000.

The workshop was divided into four sessions, each aiming to look at different perspectives of the MWG’s past. Below follows a summary of each session.

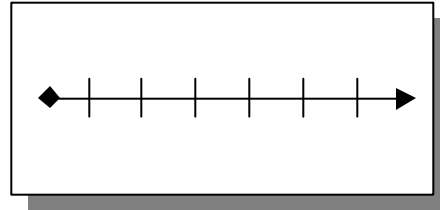
¹ Institution represented by these participants include: Fisheries Division, Tanzania Investment Centre, National Environmental Management Council, Ministry of Lands and Human Settlement Development, Ministry of Water, TAFIRI, Prawntan Inc., Amadore Inc., University of Dar es Salaam, Tanga Coastal Zone and Development Program, TCMP, CRC-URI.

² During the first directors meeting, held in February 1999, it was decided that MWG should produce a learning document with the following purpose:

- Document historical experience of mariculture
- Document lessons learned from experience of mariculture
- Document lessons learned from experience of MWG and CWG
- Present a model for approaches to inter-sectoral issues
- For presenting mariculture issues
- As input for core policy development
- Other sectoral issues

2. Recreate the history of MWG.

The purpose of this exercise was to recreate the evolution of MWG, and illuminate how it has changed over time. In small groups, the task was to reflect on and share memories of **significant events** from the MWG's past. The quest was not to know exactly when an event occurred, but to understand the sequential evolution of the work.



The time line exercise ended with a discussion that highlighted accomplishments, and surprises. There was reflection on the events that resulted in **changes in direction** and that **altered assumptions** and strategy.

Results

See Figure 1

3. Pre-history and external forces

Tagging on to the first timeline exercise, political, governmental, business/financial, or economic events over time that had an impact on the work of the MWG was identified and added on to the same time-line. There was also reflection on the internal dynamics of the Working Group, such as changes in the composition or leadership of the MWG.

Results

See Figure 2

4. What has worked well, what hasn't?

In groups, the “difficulties” and success-stories of MWG was explored. Participants also explained why something was a difficulty/failure or success and what impact it had on the process. The “stories” were written down on flip-charts.



Results

A compilation of the flipcharts gave the following result:

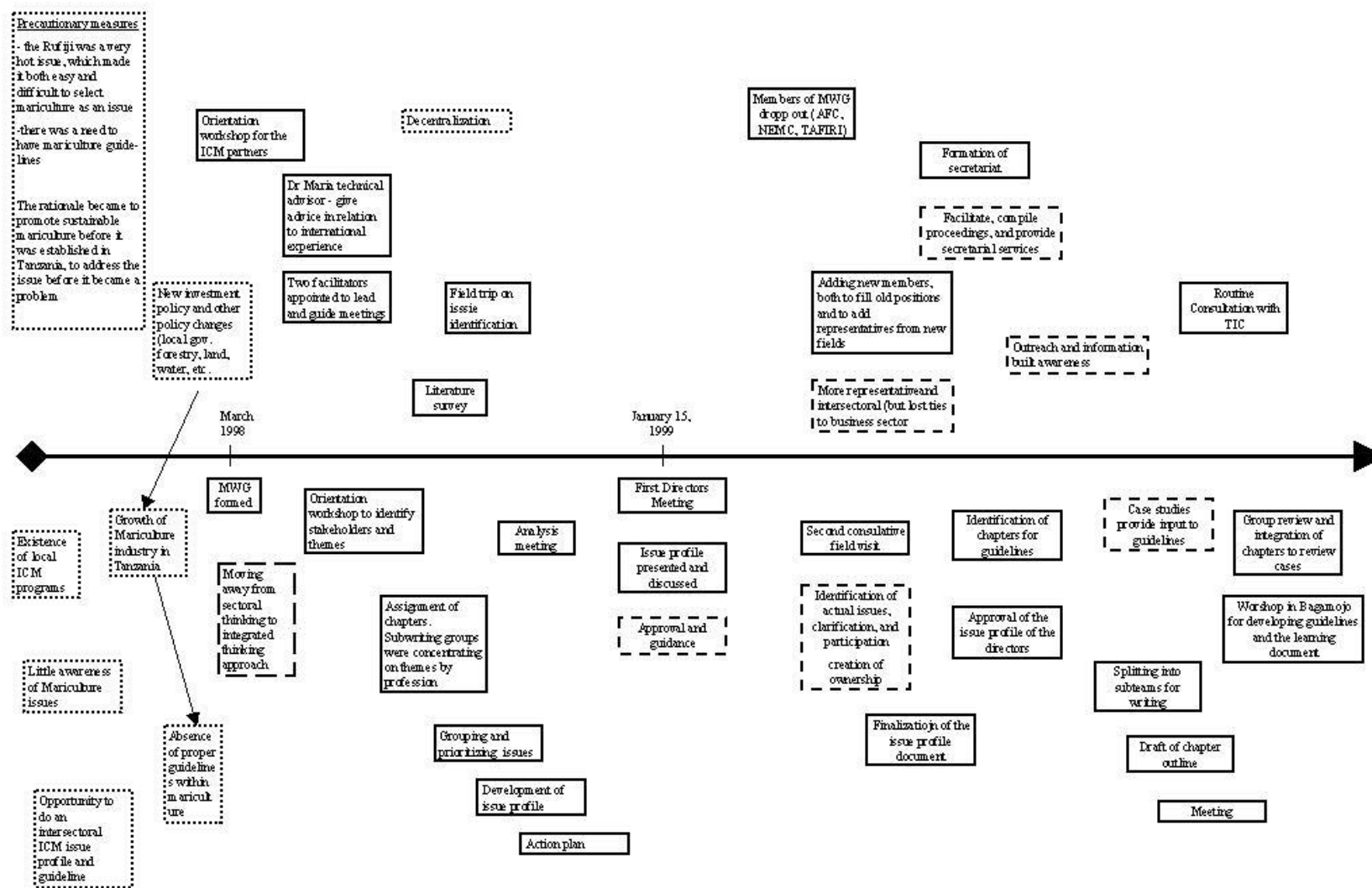
Success stories

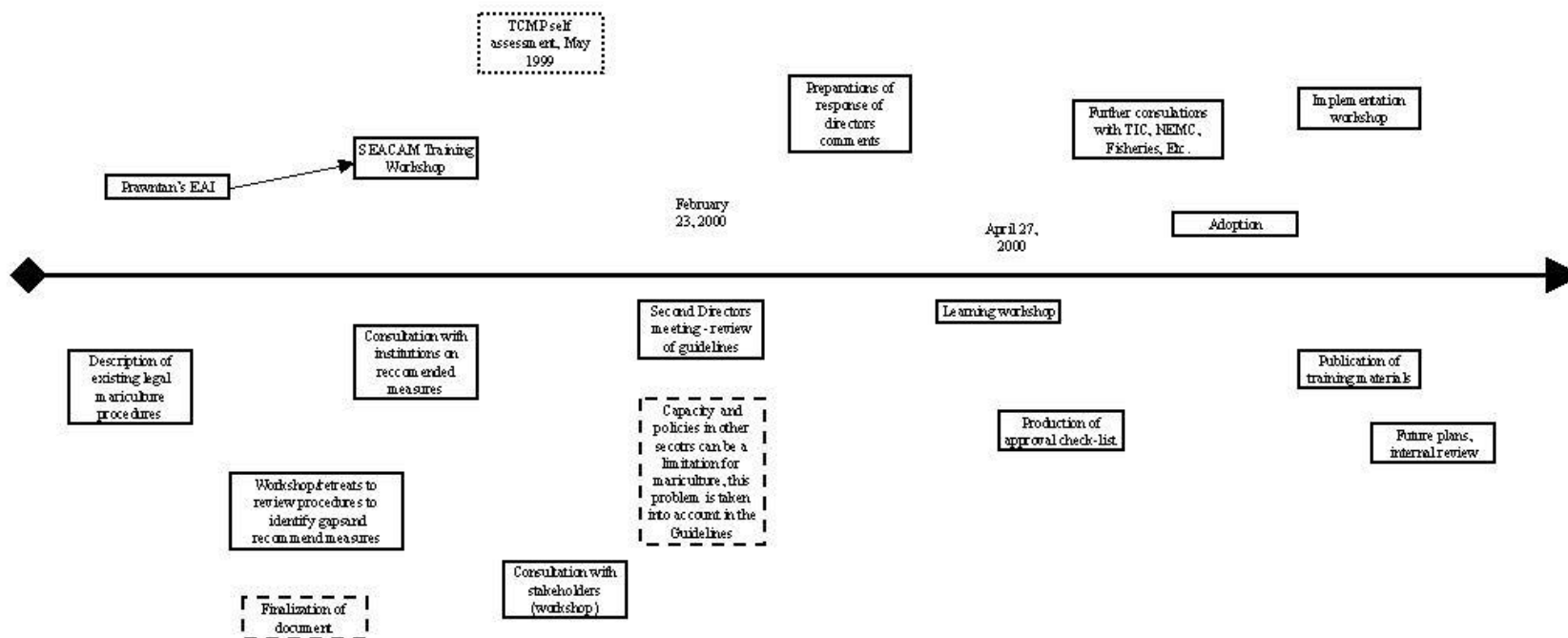
A. Participation and involvement

- The integrated approach has increased the communication and created a larger understanding between sectors. The capacity of MWG's members to think intersectorally has increased. They, in turn have the opportunity to spread their knowledge within their home offices.
- The MWG has succeeded in creating a high team-spirit

- Stakeholder involvement has increased as a result of field visits, office visits, and workshops
- The directors have been positive to the process as a whole. If they were not interested they would have stopped the process already at the first directors' meeting.

Figure 1





B. Awareness

- Public and commercial awareness of the viability of mariculture as an alternative source has increased.
- Awareness of the issues pertaining to mariculture has been created.

C. Investment Environment

- The proposed guidelines reduce investment risks.
- The investment procedures are clear
- Draft mariculture guidelines has guided some investors in mariculture activities through the approval process (i.e. Prawntan).
- As a result of the guidelines the approval procedure has speeded up.

D. Other

- Issues have been adequately identified and the issue profile document is published and distributed.
- Draft guidelines are in place.
- The promotion of mariculture is contributing to poverty alleviation

Stories of difficulties

A. Internal dynamics of the working group

- Attendance of working group
- Frequent change of members of MWG
- Lack of commitment of some members of sub-writing teams
- Participation of TIC has been difficult as they dropped out from being direct MWG members.
- Members have other commitments besides the MWG work and connecting the MWG work-plan with that of participants' work have been difficult. Meetings sometimes have to be postponed, delayed, or shortened, and as a result there are time delays.
- Lack of initial knowledge/capacity of how to develop guidelines and issue profiles. MWG members had to learn by doing.

B. Difficulties in getting decision-makers attention

- Access to and participation of high level decision-makers has been low. During directors meeting, all directors were not attending, instead they sent "junior" representatives. As a result it has been difficult to take important decisions.
- Consultation with high level stakeholders has been difficult. Often appointments were made with the head of a section, but only a representative actually came to the meeting, and they have no final decision-making power.

C. Relationship to sectors

- Lack of consultation within the working group members' respective sectors (i.e. the communication between the members and their office of what they are doing and what their duties are towards MWG).
- Difficulties in getting information from other sectors. Some sectors are not represented in MWG (e.g. tourism) and other sectors dropped out (TIC, IMS, AFC). It is costly for the other members to go for consultation with missing stakeholders, and issues pertaining to those sectors are lagging behind.

- Overlapping sectoral policies within sectors (i.e. it takes a long time for a policy to be approved and there are confusion of which policy should be followed)
- D. Stakeholder interaction and policy/legal gaps.
- Addressing gaps that need policy changes
 - Lack of clarity on tenure rights (marine waters)
 - Resource use conflicts
 - Stakeholders at community level often have too high expectations on MWG's work. During field visits they are hoping to get direct economic/material benefits from MWG, and not "only" a policy.

5. What are the transferable lessons?

In this final exercise the participants were reflecting upon the transferable lessons of MWG. The question asked was "if you were to advise colleagues contemplating initiating work on another coastal resource management issue (such as tourism development, for example), what guidance would you offer based on the work of the MWG?." The participants were also asked to write down their personal incentives for taking part in the MWG.

Result

Transferable lessons from the work of MWG

1. Connect MWG work with the work of the MWG members. Inform members' office of MWG work-plan. Take reactions on board. Coordinate TCMP WG work-plans with members' regular jobs. Communicate TCMP's priorities with respect to WG activities.
2. Find incentives for member participation (own-office gratitude, visibility, leadership, information access through To get a bigger picture it is good to consult and get feedback from the working group members' respective institutions – not only with the individual persons of the working groups.
3. Involve directors in planning
4. WG members need to be empowered to represent their agencies and to communicate /coordinate mariculture activities within their agencies.
5. It is good to find WG members according to whom talents are needed (leadership, writing skills, etc.). Hence the skills and capabilities needed from members should be explicitly stated in a ToR included in the letter to the directors.
6. Consistent WG representation is crucial.
7. Involve some members of previous WG's in new WG's
8. Better consultation and involvement of business/private sector
9. Have local program representative(s) and members with knowledge of district structures (MWG found it difficult to get good information on district level issues)
10. Concentrate on issues that have economic importance for a broad spectrum of stakeholders.
11. Policies are always evolving. Develop guidelines based on "approved" policies. Revisit guidelines when new guidelines are adopted. Avoid static documents that do not adjust over time.
12. Secretariat³ to WG is important
13. Facilitators and technical advisors to WG works well

³ TCMP provided a half-time person, who was not part of the WG, to provide logistical support to the WG members.

14. Communicate realistic expectations of the impact of WGs to local stakeholders.
15. Do awareness raising and outreach in Kiswahili newspapers and by radio broadcasts.

Individual incentives to take part in the MWG

1. Increased knowledge about and integration with other sectors
2. Opportunities for capacity building (workshops, learn more about the concept of ICM, etc.)
3. Financial incentives
4. Professional development, (writing guidelines and issue profiles, gaining a larger understanding for coastal issues)
5. Developing a sustainable mariculture industry.
6. Learn to work with different stakeholders
7. Sharing experience with the other working group members